

## **REMARKS/ARGUMENTS**

Claims 1-14 are pending.

The applicant's attorney would like to thank the Examiner for his time during the telephone conversation of April 17, 2009, where the references under 35 USC 103 were discussed. Agreement was reached in that the Examiner rejected claims 1-14 under Katzberg in stead of Hainfeld, in view of Unger.

### **Claim rejections under 35 USC § 103**

The office action rejected claims 1-14 under 35 U.S.C. 103(a) as being unpatentable over Katzberg et al. (US 6,122,540) in view of Unger (US 6,071,494). The Office Action stated that Katzberg discloses a method of imaging targeted tissues of the body via contrast enhancement for comparative analysis and renal function assessment from an extraction fraction, citing col. 1, line 65, to col. 2, line 17. This cited section of Katzberg discloses a "more invasive method" than the conventional clearance techniques (col. 1, lines 63-67). This cited section does not disclose using CT. Instead col. 2, lines 18-24, of Katzberg states that magnetic resonance imaging (MRI) has been used to provide such measurements. The office action further stated that Katzberg discloses imaging arterial blood before addition of contrast (col. 2, lines 55-65) and administration of contrast (col. 2, lines 42-55). This cited section mentions  $T_1$  and relaxation time.  $T_1$  and relaxation time are parameters for MRI, not CT. The office action then stated that Katzberg discloses comparative imaging of both arterial and venous blood after the administration of contrast to provide an assessment of renal function through an analysis of the extraction or filtration rate of the contrast (col. 3, line 1, to col. 4, line 40) and that these methods provide images based on the fractions of contrast in the blood of both the arteries and veins of the kidneys by analyzing the images provided by the MRI measurements. Again, this cited section uses  $T_1$  to generate renal function images. Such techniques using  $T_1$  are MRI techniques.

The office action stated that Katzberg does not disclose the specific use of iohexol, iothalamate, gadolinium-DTPA, nor the measurement of renal extraction fraction based on CT number of corresponding images which are acquired.

The office action then cites Unger, col. 2, line 35, to col. 3, line 5 (which makes reference to Unger 5,205,209), as allegedly teaching in detail renal function methods involving Gd-DTPA and the knowledge of iodine preparations for CT specific image analysis. The Office Action further stated that Unger discloses a method of blood-based analysis of contrast agent concentration through comparative analysis of blood before, during and after administration of the contrast agent, citing col. 12, line 60, to col. 13, line 53, and col. 50, line 65 to col. 51, line 25, and col. 51, lines 58-64, and col. 56, line 35, to col. 58, line 20 of Unger.

It would not be obvious to combine the teachings of Unger with Katzberg to obtain the obtaining a CT number ( $CT_{PRE}$ ) of arterial blood prior to addition of a radiographic contrast agent to the blood, providing a radiographic contrast agent to the blood, obtaining a CT number ( $CT_A$ ) of arterial blood after addition of the radiographic contrast agent to the blood, obtaining a CT number ( $CT_V$ ) of blood in a renal vein after addition of the agent to the blood, and determining renal function from the obtained CT numbers, as recited in claims 1 and 10. Although, Katzberg may image arterial blood before the addition of contrast, administer the contrast, and then comparatively image both arterial and venous blood after the administrative of contrast to provide assessment of renal function, Katzberg does this in equation 3, busing  $T_1$ , which is measured by MRI, but not by CT. The office action failed to specifically point out anything in Katzberg or Unger that teaches or makes obvious that it would be possible to measure  $CT_{PRE}$ ,  $CT_A$ , and  $CT_V$  and be able to use such measurements to determine renal function. Unger does not employ CT numbers as claimed.

The applicant's agent did not see anything in the citations by the Office Action that discloses or suggests obtaining CT numbers for measuring x-ray transmissions of arterial blood prior to the addition of a radiographic contrast agent, obtaining CT numbers for measuring x-ray transmissions of arterial blood after the addition of the radiographic contrast agent, obtaining CT numbers for measuring x-ray transmissions of renal vein blood and then using these CT numbers to determine renal extraction fraction. For at least these reasons, claims 1 and 10 are not made obvious by the cited references.

Claims 2-9 and 11-14 are ultimately dependent on the independent claims. In addition, these claims add additional features, which when taken together with the limitations of the independent claim are not anticipated or made obvious by the cited references. For example, claim 3 is dependent on claim 2 and further recites that renal extraction fraction (EF) is given by:

$EF = \frac{CT_A - CT_V}{CT_A - CT_{PRE}}$ . The office action failed to specifically point to anything in the references

that teach or suggest this equation. For at least these reasons, claims 2-9 and 11-14 are not anticipated or made obvious by the cited references.

Applicants believe that all pending claims are allowable and respectfully request a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at telephone number (408) 255-8001.

Respectfully submitted,  
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